

The European Commission's
**INTELLIGENT CITIES
CHALLENGE**

This document was compiled by the City of Gijón. The information and views set out in this report are those of the City and do not necessarily reflect the official opinion of EISMEA or of the European Commission. Neither EISMEA, nor the European Commission can guarantee the accuracy of the data included in this document. Neither EISMEA, nor the European Commission or any person acting on their behalf may be held responsible for the use which may be made of the information contained therein.

Gijón: Intelligent City Transformation Overview

ICC Final Deliverable



Executive summary

Gijón has a long term industrial tradition. In the last 30 years, the city has based its future development in **innovation and knowledge**. Besides, the city has defined its **Green and Digital Strategy** for the upcoming years, focused on energy efficiency and the deployment of an intelligent IoT network, through an ambitious 15-year public procurement. Moreover, relevant progress in the **digitization of local administration** and municipal public services should also be noted, as well as an active involvement of a **local ecosystem** made up of multiple public and private actors.

However, despite these advances, the city still suffers a **weak labor market**, greatly affected by the last health crisis, and needs to improve in reskilling of labor force and in attracting talent. We still have **environmental pollution problems**, mainly derived from industrial and logistics activities, as well as significant room for improvement in mobility and energy efficiency. In local governance, our **participation strategy is not yet fully developed**, and it's perceived a slight involvement and participation of citizens individually. Finally, we need to validate a model for the further development of electronic administration.

By 2030 we want a renewed city, with a **growing economy** based in knowledge, sustainability and energy efficiency, and with a comprehensive offer of **public services based in digitization**, the use of data and the intensive application of ICT, thus becoming an **attractive and inclusive place to live, work and make businesses**. In short, we want to provide our citizens with a **high-quality environment** in which all people can fully develop their lives.

In the last years, our city has been committed to rolling out its **Green and Digital Strategy**, based on promoting **energy efficiency** and deploying an **IoT network** that allows the creation of multiple smart services based on it. In parallel, the city council has made important advances in the field of **digitization and electronic administration**, in order to reach a greater efficiency and sustainability in our activities. We also feel the need to have a greater involvement and commitment of our population in our common future goals, which implies the development of a **new governance model** based on open government. Finally, we want to promote the adoption by citizens of a **new energy model** based on **autonomous production** of renewable energies and **energy communities**.

As can be seen later in this document, we are making progress on most of these goals and have achieved significant results in several of them. We have sufficient funding to keep on advancing and we have a roadmap set for the coming years: until 2028 in some cases, and until 2037 in others.

Mayor Foreword

The innovation strategy of Gijón is focused on designing the city of Gijón as a Living Lab Space where sustainability, innovation, inclusion and technology meet people, with the main goal of improving citizens quality of life and walking towards a carbon neutral city in 2030.

Our innovation model is people centered, based in innovation and equality as main cores and transversal and supportive axis of the city strategy. To reinforce this, our ecosystem of innovation is based on a four helix approach: businesses, public administrations, university and the most important, involving people with different actions related to citizen's empowerment such as the Social Innovation Center, our IoT Open Data, the School of Sustainability, the Platform for Citizens Participation, the Mile of Knowledge / Sustainable Gijón University Chair and the Innovation and Inequality Annual Forum.

We believe that our innovation model meets the most advanced criteria: experimenting as we have tested innovative concepts and approaches through the development of different Demo Labs such as Connect Gijón, Smart Lighting Demo Lab and Offices Demo Lab, that are being escalated in our local ecosystem. Another example of escalation is our project funded by the European Energy Efficiency Fund, that seeks to extend the model to the entire lighting network and municipal buildings with a strong commitment to social innovation and corporate social responsibility, with the aim of involving all citizens around the objectives of sustainability and efficiency in the use of energy.

Ana González Rodríguez

Mayor of Gijón

The city of Gijón pursued an EU-supported transformation over four main stages, and this document details that journey by these sections

Overview to the city's journey and structure of this document



1 Preparation & assessment

5 months:
September 2020 – January 2021



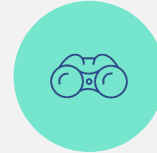
2 Ambition & roadmap

3 months:
February 2021 – April 2021



3 Implementation

15 months
May 2021 – July 2022



4 Review & way forward

2 months
August 2022 – September 2022

*Reported as
one section*

Summary

Find out **where a city is, where it should go** and who in the ecosystem is going to **mobilise make things happen**

Develop a **concrete plan** to achieve **measured improvements**, collaborating with the community; push action with immediate benefits

Get “big moves” **done** and **see results**; take **action in partnership** with others

Measure success, and commit to **keep connections and improvements going**

Section

1

September 2020 to January
2021

Gijón: Preparation and assessment

ICC transformation



Introduction

Our city has a long term industrial tradition, based in steel industries, shipbuilding, coal mining and port activities. From the 1980s onwards Gijón has experienced a deep industrial regeneration, driving the development of other economic sectors in the city: ICT, services, tourism, cultural and creative sector, circular economy, etc. The City has wagered since 1990s for the development of Innovation and Knowledge. With this aim, Gijón City Council created the **Knowledge Mile**, a geographic space that accommodates several enterprises and public institutions based on knowledge, in order to leverage the potential of this environment where technology and science live together with arts and culture. This innovation ecosystem has transformed the area in a new economic growth engine for the city, exploiting the synergies generated by these factors and resources.

We are currently executing our **Green and Digital Strategy**, which has the necessary financing and will be applied in this phase until 2028 (several measures until 2036). It includes the municipal and city digital transformation, integrating open data, internet of things, big data, and development of the AI; the improvement of skills and the creation of new professional profiles for public officials and citizens; energy transition measures and promotion of the use of renewable energy; creation of smart grids, and sustainable mobility measures, among other objectives.

Complementary, in December 2021 we have completed the **public procurement of an intelligent system for the supply and management of electric and thermal energy**, both for street lighting and municipal facilities, through the deployment of a neutral, open and interoperable IoT grid, which will allow innovation in public services for a green and digital development of the city. This great contract will be valid for 15,5 years, with a time horizon until mid 2037, with a cost of 184 million euros, with the financial support of the European Energy Efficiency Fund. The contract includes the **Gijón DemoLAB** project, aimed to involve people and stakeholders in the city progress towards innovation, sustainability, gender equality and corporate social responsibility.

With this context, the city of Gijón decided to request its participation in ICC programme, given the **alignment and coherence with the ICC objectives and methodology**. Our main goal in this project is to share our experience and learn from other cities' best practices in processes of this kind. Also the expansion, strengthening and further structuring of the local innovation ecosystem, an unfinished task in which we continue trying to advance.

City needs: State of the city overview

Significance of insight to what we want to do on the ICC



Of critical importance to ICC journey and we should be working to change



Of importance to ICC journey, and we should act to change this along the journey as opportunity presents



Contextually relevant, but not major point of attention in ICC and unlikely to be impacted on the journey

The state of Gijón today

Gijón is a city of contrasts that combines history, tradition and modernity. Over the past 40 years, it has faced several crisis phases in its production model, and has found a viable way out through the promotion of knowledge, digitization and the transfer of technology to local companies.

This process has been reflected in the conversion of a good part of our production base to the new economy. The latest crisis that began in March 2020 represents a new challenge of the greatest magnitude, due to its enormous potential impact on the local labor market.

Our territory conserves large areas with great environmental value. At the same time, production activities continue to cause pollution problems and there is great room for improvement in terms of energy efficiency. In recent years we have developed a model for the transformation of our economy and activities, based on criteria of sustainability and intensive application of ICT. This model will be deployed immediately through the creation of an IoT network that will cover practically the entire local territory, and will be complemented by a new mobility strategy and by promoting the use of renewable energies, including small-scale production.

Regarding the local ecosystem, the City Council has been the main promoter of these changes, but it has always had the cooperation of a large network of public and private entities that includes national and regional public administrations, business and union organizations, the University, research centers and the third sector, among others. Moreover, international cooperation networks and EU funds have been of fundamental importance as support elements for the establishment and development of these strategies and actions.

Key insights from city performance analysis

Higher performance observed

1 The Mile of Knowledge is a model of success in the transition of local companies towards new technologies and digitization

2 The city has a well defined 'Green and Digital' strategy for the upcoming years, with the commitment and leadership of local policy makers, focused on energy efficiency and the deployment of an intelligent IoT network

3 Relevant progress in the digitization strategy of local administration and municipal public services

4 Active role in the implementation of the 'Green and Digital' strategy, through an ambitious 15-year public procurement

5 Active involvement of a local ecosystem made up of multiple public and private actors

Lower performance observed

1 A weak labor market, greatly affected by the health crisis, and with a wide margin for improvement in terms of the reskilling of labour force

2 Environmental pollution problems, mainly derived from industrial and logistics activities

3 Slight involvement and participation of citizens individually

4 Citizen participation strategy not yet developed and still in an incipient phase

5 Need to validate a model for the further development of electronic administration

City Ecosystem

This is a **summary of the main conclusions** obtained through individual interviews and group meetings held with the various representatives of the local ecosystem:

Gijón must become a smart city that harmoniously and friendly integrates the dimensions of **environmental sustainability, energy efficiency, sustainable mobility** and **equal opportunities** for all people, while working to achieve **economic development** that increases the opportunities for all.

Environment: a clean and healthy city, in which air pollution, waste or noise do not pose a problem for citizens. A city that respects and protects the environmental heritage of its territory, beaches and rivers, and that is prepared to overcome the challenges of climate change with resilience.

Energy: a city that makes efficient use of energy, that promotes distributed production and self-consumption of renewable energies, that substantially reduces the consumption of fossil fuels and has adequate lighting in all its streets, parks and paths.

Mobility: a city that promotes the use of non-polluting means of transport, that has sustainable public transport and that has good connectivity with the rest of its region (Asturias) and the rest of Spain.

Public services: a city that is committed to constant modernization to improve the services it provides to citizens, making them faster, more comfortable, efficient and adapted to people's needs.

Digital society: a city that leaves no one behind, that eliminates obstacles such as the digital divide and facilitates access to technological devices and the necessary training for their use by people of all ages.

Governance: a city that attends to diversity and is a model of citizen participation and collaboration. A city that works for the integration of the most disadvantaged people and is a benchmark in gender equality policies. A flexible city that adapts to the circumstances and needs of each moment, always working tightly in collaboration with citizens and the local ecosystem.

ICC strategy: Vision and ambition statements

In 2030 Gijón is a renewed city, with a growing economy based in knowledge, sustainability and energy efficiency, and with a comprehensive offer of public services based in digitization, the use of data and the intensive application of ICT, thus becoming an attractive and inclusive place to live, work and make businesses.

1. Our Green and Digital Strategy is deployed, with relevant advances in energy efficiency and the complete deployment of an intelligent IoT network.

- 1.1. An open and inter-operable **IoT network** is deployed throughout the municipal territory.
- 1.2. Deployment of a smart and sustainable **public lighting system**.
- 1.3. Deployment of **smart energy management** system in public buildings.

2. Electronic administration is fully developed in our municipality and city, allowing us to reach a greater efficiency and sustainability in our activities.

- 2.1. Complete **reengineering of public administration procedures**, achieving a more agile and efficient public management.
- 2.2. Management of the city and public services based on **intensive use and exchange of data**, dynamic dashboards and use of the AI.

3. Development of a governance model based on open government, using the potential of ICT to promote transparency, accountability, participation and citizen collaboration.

- 3.1. New improved online **platform for citizen participation**.
- 3.2. New **open data and data analytics online platform**.
- 3.3. Full deployment of **Gijón DemoLAB Project**, based in public-private cooperation and co-creation of public services.

4. New employment opportunities provided to local population through reskilling programs, aimed primarily at the most disadvantaged groups in the labor market.

- 4.1. Create a comprehensive program aimed to **reskilling** of workers and promotion for **STEAM careers**.
 - 4.2. Create a **platform** to connect education, talent and employers needs.
- (Note: both statements, to be implemented in further phases of deployment)

City strategy: justification (1/3)

For more than seven years, our city has been developing an **integrated strategy aimed to become a smart city**, that departs from the following **elements of knowledge, criteria and decisions**:

- We have set as future objective for Gijón to become a **smart, sustainable, inclusive and prosperous city**.
- On this path, one of the fundamental pillars is the creation of a **communications network** that allows real-time data to be obtained from all kinds of sensors.
- This network must be based on an **open and interoperable protocol** that ensures its accessibility under equal conditions for all the actors that interact with the network, and also ensures the **neutrality of the data** and its primary access by the City Council.
- The **lighting network** has been identified as the most suitable support for the deployment of the communications network, allowing the creation of an integrated system (*vertical*) for the **intelligent management of public lighting** (already in service).
- To improve the sustainability of the model as much as possible, it has been decided to change all the luminaires to **LED technology** and it has been ensured through a public contract that the supply of all the energy consumed by the network in the future will come from **renewable sources**.
- Likewise, on the road to sustainability, it has been decided to act on the **management of energy installations** (heating and cooling) in **public buildings** owned by the City Council, deploying an intelligent management system, connected to the local IoT network and based on the consumption of clean and renewable energies.
- Regarding the local administration, the **need for a more agile, efficient administration focused on solving citizen problems** is highlighted, through a comprehensive **reengineering of public management processes and procedures**, achieving their **full digitization**, and a management and decision-making model based on the **intensive use of data**; the data will be made **open and available by default** to the innovation ecosystem and local citizens.
- In the next future, the commissioning of **new public services** is planned based on the principles already mentioned, through some **pilot projects** in the fields of the environment (air pollution and noise sensors), mobility (traffic, parking and public transport), tourism and sensorization of homes and businesses.
- These processes cannot be successful if they do not have the **participation and support of the local innovation ecosystem and the citizenry** as a whole. For this reason, we are working on different lines in the field of social innovation, included in **Gijón DemoLAB** project: **demonstrative actions, training**, specific actions aimed at **schoolchildren, co-creation** actions, etc. We have created an **online training platform** based on Moodle software. In the field of citizen participation, we are fine-tuning a **new participation platform**. In the field of open data and data analytics, we are currently working on a **new online data platform**. Gijón DemoLAB project also includes several **thematic labs**, aimed at allowing suppliers, manufacturers and all kinds of actors in the ecosystem to test their products and check their compatibility with the requirements of the IoT network; public lighting and energy management DemoLABs are currently available.

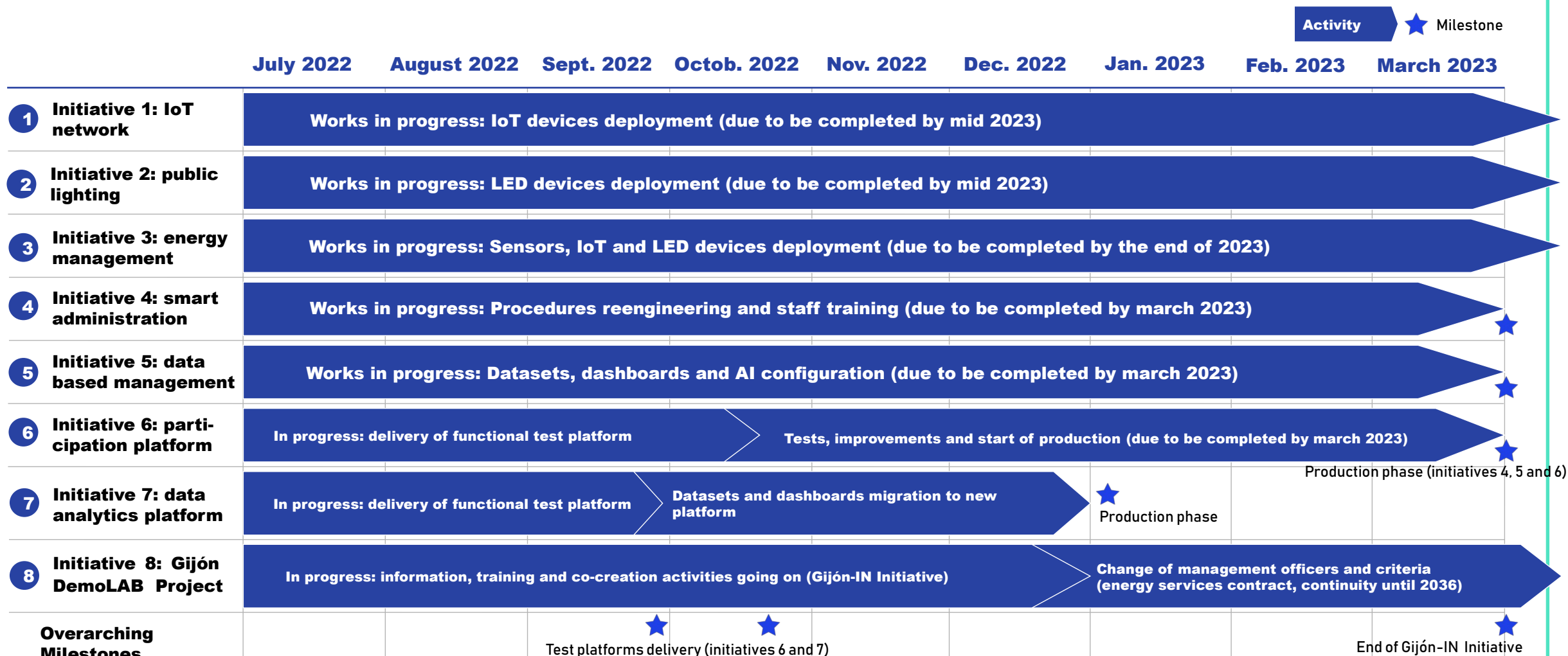
Section 2

Gijón: Ambition and roadmap

ICC Transformation

February 2021 to May 2021

High level implementation roadmap (“10000m plan”)



Rationale to road map

Roadmap planning

The roadmap is mainly based on three sources. On the one hand, the long experience of our administration in the digitization of public services, started more than 20 years ago, which has gone through different phases and is now reaching the latest objectives to achieve a fully digital administration with a minimum of paper work. On the other hand, the conviction of the need to adopt a resource management strategy based on sustainability and respect for the environment, which led to the design as of 2015 of our Green and Digital Strategy. Finally, the awareness that the goal of becoming a smart city is a necessary condition to improve the quality, efficiency and sustainability in the use of public resources. All these insights and strategies have been included in comprehensive, coherent and interrelated projects for the transformation of the city, which, once approved, have their respective commitments and execution schedules, which in turn mark the roadmap's path.












Critical paths involved

The elements considered critical in the roadmap are related to the creation, commissioning and expansion of the internet of things network on the public lighting network, as a strategic element that will allow the deployment of smart services on public roads and the intelligent and partially unattended management of the public lighting network, generating significant savings in financial terms and a positive impact on the sustainability of public services. In this sense, the processes already implemented for the designation of the system and communications protocol to be used in the IoT network have played a fundamental role, as well as the creation of the DemoLabs for lighting and buildings, which allow interested companies to test the compatibility of their systems with the municipal network free of charge.








Resource limitations and task prioritizing

The tasks to be carried out now and in the future are planned and marked out in the projects currently under execution, for which they have the necessary financial reserve to bring them to a successful conclusion.










Initiative charter 1 - IoT network throughout the municipal territory

Strategy	Stakeholders involved	Inputs, outputs, outcomes and impacts
Description  <p>What: Creation of an IoT network throughout the municipal territory, using the public lighting network as backbone.</p> <p>Why: This will be the starting point for deploying other smart public services management systems over the same network, extending digital services to the entire population.</p> <p>How: Deployment of hardware and software.</p>	Solution lead:  <p>Gijón City Council.</p> <hr/> Solution working team:  <p>Dirección General de Innovación (Gijón City Council), Acciona, T-Systems (award companies).</p> <hr/> Contributor  <p>Gijón Smart City Chair (University of Oviedo), Red.es (Spain national government),</p> <hr/> Risks and mitigation  <p>Risks: Ability of the winning company to meet the objectives and deadlines set in the public tender.</p> <p>Challenges: no challenges forecasted.</p> <p>Mitigating measures: Permanent monitoring of performance.</p>	Source of funding and estimated cost  <p>Sources of funding: Gijón City Council, Red.es (Spain national government), ERDF, European Energy Efficiency Fund.</p> <p>Estimated cost: ~2,000,000 €</p> <hr/> Solution maturity outputs  <p>Deployment of an IoT network throughout the local territory. Deployment of smart public systems on this network. Availability of big data related to the systems and devices deployed over the IoT network.</p> <hr/> City performance outcomes and impacts  <p>Availability of new smart management systems, which will lead to more efficient and more adapted public services and quality of life.</p> <p>Availability of big data related to the systems and devices deployed over the IoT network, which will bring a better knowledge and understanding of basic city processes. This will lead to the creation of early warning and preventive management systems, and also as a base to a more complete open data and data visualization platform.</p>
Link to vision  <p>1, Part of Gijón Green and Digital Strategy.</p>		
Link to ambition statement  <p>1.1. An open and inter-operable IoT network is deployed throughout the municipal territory.</p>		
Expected impact and timing  <p>Deployment of IoT network using the public lighting network as backbone, based on open and interoperable technologies (6LoWPAN protocol).</p> <p>The solution is currently 8% deployed.</p>		





Initiative charter 2 - Sustainable and intelligent public lighting

Strategy	Stakeholders involved	Inputs, outputs, outcomes and impacts	
Description  <p>What: Replacement of current luminaires with LED devices and use of intelligent systems (point-to-point remote management of public lighting network).</p> <p>Why: Need to improve the efficiency and sustainability of local activities, Reduction of public spending on energy.</p> <p>How: Deployment in parallel to the IoT network.</p>	Solution lead:  <p>Gijón City Council.</p> <hr/> Solution working team:  <p>Dirección General de Innovación (Gijón City Council), Acciona, T-Systems (award companies).</p>	Source of funding and estimated cost  <p>Sources of funding: Gijón City Council, Red.es (Spain national government), ERDF, European Energy Efficiency Fund.</p> <p>Estimated cost: 1,151,000 €</p>	
Link to vision  <p>1, Part of Gijón Green and Digital Strategy.</p>	Contributor  <p>Gijón Smart City Chair (University of Oviedo), Red.es (Spain national government),</p>	Solution maturity outputs  <p>More than 42,000 LED devices installed and running. Development (already completed) and extension to the entire network of point-to-point smart system for the remote management of public lighting. Money savings in energy expenditure for the City Council. Reduction of pollutant and CO₂ emissions linked to use of LED devices, efficiency improvements in lighting network and use of clean and renewable energies guaranteed by contract.</p>	
Link to ambition statement  <p>1.2. Deployment of a smart and sustainable public lighting system.</p>	Risks and mitigation  <p>Risks: Ability of the winning company to meet the objectives and deadlines set in the public tender.</p> <p>Challenges: no challenges forecasted.</p> <p>Mitigating measures: Permanent monitoring of performance.</p>	City performance outcomes and impacts  <p>Reduction in City Council expenditure, opening the possibility of increasing public spending in other sectors or reducing taxes.</p> <p>New smart lighting management system, which will lead to more efficient and more adapted public services and quality of life.</p> <p>Improvement in the sustainability of local activities and positive impact on air quality and climate in general.</p>	
Expected impact and timing  <p>Money savings in energy expenditure for the City Council. Reduction of pollutant and CO₂ emissions linked to use of LED devices, efficiency improvements in lighting network and use of clean and renewable energies guaranteed by contract.</p> <p>The solution is currently 8% deployed, it's expected to be completed by mid 2023.</p>			












Initiative charter 3 - Smart energy management in public buildings

Strategy	Stakeholders involved	Inputs, outputs, outcomes and impacts
Description  <p>What: Deployment of devices on all municipal buildings in order to intelligently manage their use and rationalize the consumption of primary energy (electricity and gas), as well as different resources (cold water, hot water and air quality).</p> <p>Why: Need to improve the efficiency and sustainability of local activities, Reduction of public spending on energy.</p>	Solution lead:  <p>Gijón City Council.</p> <hr/> Solution working team:  <p>Dirección General de Innovación (Gijón City Council), Acciona, T-Systems (award companies).</p> <hr/> Contributor  <p>Gijón Smart City Chair (University of Oviedo), Red.es (Spain national government),</p> <hr/> Risks and mitigation  <p>Risks: Ability of the winning company to meet the objectives and deadlines set in the public tender.</p> <p>Challenges: no challenges forecasted.</p> <p>Mitigating measures: Permanent monitoring of performance.</p>	Source of funding and estimated cost  <p>Sources of funding: Gijón City Council, Red.es (Spain national government), ERDF, European Energy Efficiency Fund.</p> <p>Estimated cost: ~3,000,000 €</p> <hr/> Solution maturity outputs  <p>New devices deployed in more than 100 municipal buildings and facilities. Development (already completed) and extension to all municipal buildings of smart system for the remote management of energy. Money savings in energy expenditure for the City Council. Reduction of pollutant and CO₂ emissions linked to efficiency improvements in systems and installations, and to the use of clean energies, guaranteed by contract.</p> <hr/> City performance outcomes and impacts  <p>Reduction in City Council expenditure, opening the possibility of increasing public spending in other sectors or reducing taxes.</p> <p>New energy management system, which will lead to more efficient and more adapted public services and quality of life.</p> <p>Improvement in the sustainability of local activities and positive impact on air quality and climate in general.</p>
Link to vision  <p>1, Part of Gijón Green and Digital Strategy.</p>		
Link to ambition statement  <p>1.3. Deployment of smart energy management system in public buildings.</p>		
Expected impact and timing  <p>Money savings in energy expenditure for the City Council. Reduction of pollutant and CO₂ emissions linked to efficiency improvements in systems and installations, and to the use of clean energies, guaranteed by contract.</p> <p>The solution is currently 4% deployed.</p>		


Initiative charter 4 - Reengineering of public administration procedures

Strategy	Stakeholders involved	Inputs, outputs, outcomes and impacts
<p>Description</p>  <p>What: Systematic deployment of new formulas and methods to achieve a more agile and efficient public management, based on intensive use of ICTs.</p> <p>Why: Need for a more agile, efficient administration focused on solving citizen problems.</p> <p>How: Digitization and rationalization of processes and procedures currently underway.</p>	<p>Solution lead:</p>  <p>Gijón City Council.</p> <hr/> <p>Solution working team:</p>  <p>Dirección General de Innovación (Gijón City Council), T-Systems (award company).</p> <hr/> <p>Contributor</p>  <p>Red.es (Spain national government),</p>	<p>Source of funding and estimated cost</p>  <p>Sources of funding: Gijón City Council, Red.es (Spain national government), ERDF.</p> <p>Estimated cost: 2,674,000 €</p> <hr/> <p>Solution maturity outputs</p>  <p>Improvements and simplification in management procedures throughout the entire organization, with special regard to those sectors with the lowest digitization indexes: archive, subventions, urbanism, taxes, local police,</p> <p>Reduction in the processing time of public services.</p> <p>Reduction in spending on paper and printing.</p>
<p>Link to vision</p>  <p>2. Electronic administration development.</p>	<p>Risks and mitigation</p>  <p>Risks: Ability of the winning company to meet the objectives and deadlines set in the public tender.</p> <p>Challenges: Some initial resistances have been identified by the directly affected personnel and their responsible persons, which expresses their uncertainty in changing their usual management procedures.</p> <p>Mitigating measures: Permanent monitoring of performance, direct communication with staff.</p>	<p>City performance outcomes and impacts</p>  <p>Improvement in quality of life for the citizens through a simpler and more comfortable relation with the administration.</p> <p>Improvement in sustainability through reduction on paper use and printing.</p> <p>Reduction in City Council expenditure, opening the possibility of increasing public spending in other sectors or reducing taxes.</p> <p>Improvement in the opinion of citizens about municipal public services.</p>
<p>Link to ambition statement</p>  <p>2.1. Complete reengineering of public administration procedures, achieving a more agile and efficient public management.</p> <hr/> <p>Expected impact and timing</p>  <p>Systematic deployment of new formulas and methods to achieve a more agile and efficient public management, assuming respect for current legislation, intensive use of ICTs and cooperation between public administrations.</p> <p>The works for digitization and rationalization of processes and procedures are currently underway and due to finish by March 2023.</p>		












Initiative charter 5 - Management based on data usage

Strategy		Stakeholders involved		Inputs, outputs, outcomes and impacts	
<div>Description</div> <div></div>	<p>What: Management of the city and public services based on intensive use and exchange of data, dynamic dashboards and use of the AI.</p> <p>Why: Need to achieve a better and quicker response to changing situations and citizens demands.</p> <p>How: Change of procesess and procedures currently underway.</p>	<div>Solution lead:</div> <div></div>	Gijón City Council.	<div>Source of funding and estimated cost</div> <div></div>	<p>Sources of funding: Gijón City Council, Red.es (Spain national government), ERDF.</p> <p>Estimated cost: 304,000 €</p>
		<div>Solution working team:</div> <div></div>	Dirección General de Innovación (Gijón City Council), T-Systems (award company).		
	<div>Link to vision</div> <div></div>	2. Electronic administration development.	<div>Contributor</div> <div></div>	Red.es (Spain national government),	<div>Solution maturity outputs</div> <div></div>
<div>Link to ambition statement</div> <div></div>	2.2. Management of the city and public services based on intensive use and exchange of data, dynamic dashboards and use of the AI.	<div>Risks and mitigation</div> <div></div>		<div>City performance outcomes and impacts</div> <div></div>	<p>Improvement in quality of life for the citizens through a simpler and more comfortable relation with the administration.</p> <p>Availability of big data which will bring a better knowledge and understanding of basic city processes. This will lead to the creation of early warning and preventive management systems, and also as a base to a more complete open data and data visualization platform.</p> <p>Improvement in the opinion of citizens about municipal public services.</p>
<div>Expected impact and timing</div> <div></div>	<p>Improved management efficiency through intensive ICT application. Improved local levels of open government, transparency and accountability. Support for citizen participation through a better knowledge of the city council's management.</p> <p>The works in this project are currently underway and due to finish by March 2023.</p>				












The European Commission's
INTELLIGENT CITIES














Initiative charter 6 - New online platform for citizen participation

Strategy		Stakeholders involved		Inputs, outputs, outcomes and impacts	
Description 	<p>What: Creation of a new online platform for citizen participation, with new and improved functionalities.</p> <p>Why: Need to boost citizen participation and engagement in city management.</p> <p>How: Development of the new platform currently underway.</p>	Solution lead: 	Gijón City Council.	Source of funding and estimated cost 	<p>Sources of funding: Gijón City Council, Red.es (Spain national government), ERDF.</p> <p>Estimated cost: 162,600 €</p>
		Solution working team: 	Dirección General de Innovación (Gijón City Council), T-Systems (award company).	Solution maturity outputs 	<p>New online platform for citizen participation, with new and improved functionalities, including new formulas to stimulate citizen participation (job sharing, shopping basket, gamification...).</p>
	Link to vision 	3. Development of a governance model based on open government.	Contributor 		
Link to ambition statement 	3.1. New improved online platform for citizen participation.	Risks and mitigation 	<p>Risks: Ability of the winning company to meet the objectives and deadlines set in the public tender.</p> <p>Challenges: no challenges forecasted.</p> <p>Mitigating measures: Permanent monitoring of performance.</p>	City performance outcomes and impacts 	<p>Promote the participation of citizens in public affairs, empowering them and improving their knowledge of the activities of the municipality.</p> <p>Support for the development of projects shared with society, based on the co-responsibility of all stakeholders.</p>
Expected impact and timing 	<p>Creation of a new online platform for citizen participation, with new and improved functionalities, including new formulas to stimulate citizen participation (job sharing, shopping basket, gamification...).</p> <p>The works in this project are currently underway and expected to be finished by December 2022.</p>				

Initiative charter 7 - Open data and data analytics online platform

Strategy		Stakeholders involved		Inputs, outputs, outcomes and impacts	
Description 	<p>What: Creation of a new open data and data analytics platform.</p> <p>Why: Need to boost the use of data in the local ecosystem and promote citizen participation and engagement in city management.</p> <p>How: Development of the new platform currently underway.</p>	Solution lead: 	Gijón City Council.	Source of funding and estimated cost 	<p>Sources of funding: Gijón City Council, Red.es (Spain national government), ERDF.</p> <p>Estimated cost: 272,000 €, the project involves future work to be carried out by municipal personnel.</p>
		Solution working team: 	Dirección General de Innovación (Gijón City Council), T-Systems (award company).		
		Contributors: 	Red.es (Spain national government),	Solution maturity outputs 	<p>New open data and data analytics online platforms.</p> <p>In a later phase, from the beginning of 2023, launch of an integrated promotion and support program aimed to extend the use of open data to local companies and society.</p>
Link to vision 	3. Development of a governance model based on open government.				
Link to ambition statement 	3.2. New open data and data analytics online platform.				
Expected impact and timing 	<p>Creation of a new open data and data analytics online platform.</p> <p>The works in this project are currently underway and due to finish by March 2023.</p>	Risks and mitigation 	<p>Risks: Ability of the winning company to meet the objectives and deadlines set in the public tender.</p> <p>Challenges: There has been a change in the model used for the concept and design of the portal, which has resulted in a delay with respect to the initial schedule..</p> <p>Mitigating measures: Permanent monitoring of performance.</p>	City performance outcomes and impacts 	<p>Boost the use of data in the local ecosystem, contributing to the creation of new businesses based on data and the emergence of a society more open to technology.</p> <p>Promote the participation of citizens in public affairs, empowering them and improving their knowledge of the activities of the municipality.</p> <p>Support for the development of projects shared with society, based on the co-responsibility of all stakeholders.</p>

Initiative charter 8 - Gijón DemoLAB project (Social Innovation Center)

Strategy		Stakeholders involved		Inputs, outputs, outcomes and impacts	
Description 	<p>What: Creation of a innovation oriented technological infrastructure and development of different activities, including public information, training and co-creation of public services.</p> <p>Why: Need to boost the local ecosystem and promote citizen participation and engagement around technological and social innovation.</p> <p>How: Development currently underway.</p>	Solution lead: 	Gijón City Council.	Source of funding and estimated cost 	<p>Sources of funding: Gijón City Council, Red.es (Spain national government), ERDF.</p> <p>Estimated cost: 266,000 € initial investment, plus ~100,000 €/year; the project involves future work to be carried out by municipal personnel.</p>
	Link to vision 	Solution working team: 	Dirección General de Innovación (Gijón City Council), Acciona, T-Systems (award companies).	Solution maturity outputs 	<p>Availability of spaces and means oriented towards social innovation and citizen participation in the resolution of future challenges for the city.</p> <p>Availability of courses and information actions oriented to the whole population on issues related to technological and social innovation.</p> <p>From March 2023 through 2036, change of focus of actions in line with the change in the contractual framework of the project.</p>
	Link to ambition statement 	Contributors: 	Red.es (Spain national government),	City performance outcomes and impacts 	<p>Number of people participating in the different actions programmed.</p> <p>Number of public services modified and improved through collaboration with citizens.</p> <p>Greater engagement and support from the citizens in local affairs, improvement of the capacities of the local population around innovation.</p>
Expected impact and timing 	<p>Enhance the local population capacities around innovation, improving their knowledge of ICTs and promoting their use, and boosting the joint creation of solutions to improve the performance of public services</p> <p>The works in this project are currently underway and due to finish by March 2023.</p>	Risks and mitigation 	<p>Risks: Ability of the winning company to meet the objectives and deadlines set in the public tender.</p> <p>Challenges: Difficulties and delays in training actions and citizen participation and collaboration activities due to de Covid-19 pandemics.</p> <p>Mitigating measures: Focus on online actions, permanent monitoring of performance.</p>		

Key Performance indicators - overview [1/2]

Solution	Activities – Inputs and actions	Solution Maturity - outputs	City performance – outcomes and impacts
1 - IoT network	Number of new LED luminary + IoT node combos installed / Number of gateways deployed	Number of nodes and gateways in IoT network / Surface covered by the network / Number of actuators and sensors connected to the network	Number of new municipality online services developed through the IoT network / Number of open data new datasets published based on IoT sensors
2 - Sustainable public lighting	Number of new LED luminary + IoT node combos installed	Number of luminaries replaced with LED devices	Reduction in the annual energy consumption of public lighting / Reduction of carbon dioxide emissions / Reduction of emissions of other polluting substances
3 - Smart energy in public buildings	Number of eligible public buildings / Number of IoT sensors and devices deployed in municipal buildings	Number of public buildings subject to actions / Surface of public buildings covered by the network	Reduction in the annual energy consumption of municipal buildings (lighting, heating and cooling) / Reduction of carbon dioxide emissions / Reduction of emissions of other polluting substances
4 - Reengineering of public administration procedures	Number of processes and procedures eligible for simplification and digitization / Number of sub-projects deployed	Number of simplified and digitized processes and procedures	Reduction in the processing time of public services / Reduction in spending on paper and printing / Improvement in the opinion of citizens about municipal public services
5 - Management based on data usage	Number of processes and services eligible for data-based management / Number of sub-projects deployed	Number of processes and services managed through intensive use of data	Reduction in the processing time of public services / Quality improvement of public service management / Improvement in the public opinion about municipal public services
6 - New online platform for citizen participation	Number of training and dissemination actions on the new platform developed.	Number of people registered on the platform / Number of participatory processes developed through the platform	Greater engagement and support from the citizens in local affairs / Increased transparency

Key Performance indicators - overview [2/2]

Solution	Activities – Inputs and actions	Solution Maturity - outputs	City performance – outcomes and impacts
7 - Open data and data analytics online platform	Number of training and dissemination actions on the new platform developed.	Number of people registered on the platform / Number of open datasets published / Number of datasets shared by citizens / Number of views of the datasets	Greater engagement and support from the citizens in local affairs, increased transparency
8 - Gijón DemoLAB project	Area of new facilities integrated in the project - Number of face-to-face training positions created - Investment implemented in the new facilities and equipment	Number of people participating in the different actions programmed / Number of public services modified and improved through collaboration with citizens	Greater engagement and support from the citizens in local affairs / Improvement of the capacities of the local population around innovation

Key Performance indicators - Cross cutting indicators

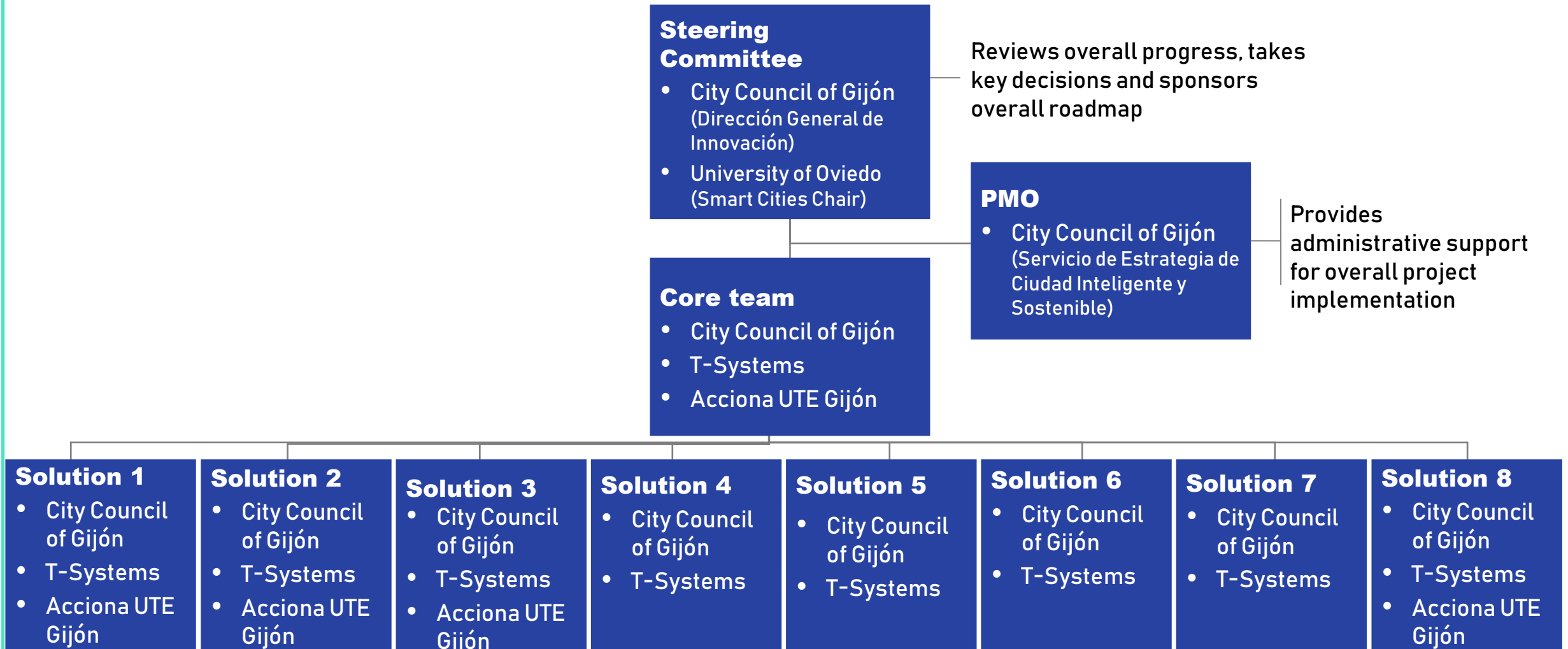
Cross cutting indicators
Investments: facilities, equipment, devices...
Annual current expenditure implemented by type
Number of participants or beneficiaries of the different initiatives by gender, age group and neighbourhood of residence
Number of companies, associations and entities integrated in the local innovation ecosystem

Rationale to KPI approach

The criteria for the selection of solution-specific indicators and cross-cutting indicators are based on the availability of data from existing sources, as well as the validity of the data for monitoring and evaluation of the actions.

Part of the data to be collected in the section on city performance must be collected through specific research methods, such as periodic opinion polls, which must be planned and have not been taken into consideration as content of the proposed solutions.

Governance structure for roadmap implementation



Section

3+4

Gijón: Impact

ICC Transformation

February 2021 to May 2021

There are four types of measurable concepts that come together to drive success in the ICC



Assessment of city performance - progress against KPIs

		Where we started	Midway through the challenge	Final results
City performance				
1	Number of new municipality online services developed through the IoT network	0	3	7
2	Number of open data new datasets published based on IoT sensors	0	4	11
3	Reduction in the annual energy consumption of public lighting	0%	-3%	-12%
4	Reduction in the annual energy consumption of municipal buildings (lighting, heating and cooling)	0%	-1%	-5%
5	Reduction in the processing time of public services	0%	15% (estimation)	30% (expected)
6	Reduction in spending on paper and printing	0%	20% (estimation)	60% (expected)

Assessment of city performance - progress against KPIs

		Where we started	Midway through the challenge	Final results
City performance				
7	Reduction of carbon dioxide emissions (public lighting, heating and cooling installations)	0%	0%	-64% (expected)
8	Reduction of polluting substances emissions (SO ₂ , NO, NO ₂ , CO, PM ₁₀ , O ₃ , average values)	0%	+6.03%	-2.17%

Assessment of city performance - discussion

The city performance indicators shown on the two preceding pages are designed to evaluate progress in different aspects of the city, based on the entry into service of different projects (Gijón-IN initiative, new energy services contract, etc.). Given that each of these projects has a specific timing, which does not coincide with the deadlines for participation in the ICC, the results shown are not those expected at the beginning or end of each of the projects, but at the beginning of ICC and at the present time, at the end of ICC.

Notes on specific indicators:

1. *Number of new municipality online services developed through the IoT network.* In the initial deployment phase the services of lighting control, parking, air quality, electricity consumption, water consumption, gas consumption and noise have been deployed. In subsequent years, new online services are planned in the areas of environmental control, mobility and watering of public parks, among others.
 2. *Number of open data new datasets published based on IoT sensors.* This includes 3 lighting datasets, 7 air quality datasets and 1 electricity consumption dataset.
- 5-7. The expected values refer to the time of completion of each respective project.

Suggested topics for discussion:

Improvement in the opinion of citizens about municipal public services.

Greater engagement and support from the citizens in local affairs.

Improvement of the capacities of the local population around innovation.

It is planned to design specific indicators on on these indicators, but they have not been finally enabled as of the date of finalisation of the ICC.

Assessment of solution maturity - progress against KPIs

		Where we started	Midway through the challenge	Final results
Solution maturity				
1	Number of nodes and gateways in IoT network	11	328	1,624
2	Surface covered by the network (square kilometres)	1.3	3.6	9.8
3	Number of actuators and sensors connected to the network	28	136	225
4	Number of luminaries replaced with LED devices	3,415	5,727	8,442
5	Number of public buildings subject to actions	0	0	3
6	Surface of public buildings covered by the network (square metres)	0	0	4,758

Assessment of solution maturity - progress against KPIs

		Where we started	Midway through the challenge	Final results
Solution maturity				
7	Number of simplified and digitized processes and procedures	20	31	47
8	Number of processes and services managed through intensive use of data	0	1	3
9	Number of people registered on the platform for citizen participation	10,096	10,215	11,280
10	Number of participatory processes developed through the platform for citizen participation	35	43	48
11	Number of people registered on the open data and data analytics online platform	138	143	165
12	Number of open datasets published	729	743	784

Assessment of solution maturity - discussion

Suggested topics for discussion:

Number of datasets shared by citizens.

Number of views of the datasets on the open data and data analytics online platform.

Number of people participating in actions programmed through Gijón DemoLAB project.

Number of public services modified and improved through collaboration with citizens.

These initially planned indicators have had to be provisionally removed from the list of results due to lack of data. It is planned to address this issue in the near future.

Assessment of city ecosystem and activities - progress against KPIs

		Where we started	Midway through the challenge	Final results
City ecosystem and activities				
1	Number of new LED luminary + IoT node combos installed	0	1	1,597
2	Number of gateways deployed	0	0	27
3	Number of eligible public buildings	0	25	25

Assessment of city ecosystem and activities - discussion

Suggested topics for discussion:

- Number of IoT sensors and devices deployed in municipal buildings.*
- Number of processes and procedures eligible for simplification and digitization.*
- Number of public administration procedures reengineering sub-projects deployed.*
- Number of processes and services eligible for data-based management.*
- Number of processes and services data-based management sub-projects deployed.*
- Number of training and dissemination actions on the new citizen participation platform developed.*
- Number of training and dissemination actions on the new open data platform developed.*
- Number of people participating in actions programmed through Gijón DemoLAB project.*
- Number of public services modified and/or improved through collaboration with citizens.*
- Number of meetings and bilateral contacts with different representatives of the local innovation ecosystem.*
- Number of group meetings with representatives of local innovation ecosystem.*
- Number of entities with which long-term agreements on common sustainable development objectives for the city.*

These initially planned indicators have had to be provisionally removed from the list of results due to lack of data. It is planned to address this issue in the near future.

5 key lessons

Lesson	Reflections
1	More time and effort needs to be devoted to strategy and action planning tasks: identification of problems to be solved, prioritisation and linkage with the city strategy and national and European strategies.
2	There is a need to align strategies and work with key local stakeholders, establishing a stable working methodology based on communication and mutual trust.
3	Environmental and energy efficiency challenges must have the highest priority, without forgetting the maintenance of the living conditions of citizens.
4	It is essential to encourage the participation and active involvement of citizens, both to assess priorities for action and to guide the content of programmes.
5	We need to push further for data-driven management, ensuring its automatic collection, its continuous use in management tasks and its use as a tool for transparency and accountability.
6	Participation in ICC has allowed us to learn about working methodologies and experiences in other European cities with similar interests, which can be very useful for their application in our city.